

SECTION 01 71 23

CONSTRUCTION STAKING AND SURVEY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requirements for construction staking and construction survey
- B. Deviations from this City of Fort Worth Standard Specification
 - 1. None.
- C. Related Specification Sections include, but are not necessarily limited to:
 - 1. Division 0 – Bidding Requirements, Contract Forms and Conditions of the Contract
 - 2. Division 1 – General Requirements

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Construction Staking
 - a. Measurement
 - 1) This Item is considered subsidiary to the various Items bid.
 - b. Payment
 - 1) The work performed and the materials furnished in accordance with this Item are subsidiary to the various Items bid and no other compensation will be allowed.
 - 2. Construction Survey
 - a. Measurement
 - 1) This Item is considered subsidiary to the various Items bid.
 - b. Payment
 - 1) The work performed and the materials furnished in accordance with this Item are subsidiary to the various Items bid and no other compensation will be allowed.

1.3 REFERENCES [NOT USED]

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

- A. Submittals, if required, shall be in accordance with Section 01 33 00.
- B. All submittals shall be approved by the City prior to delivery.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

- A. Certificates
 - 1. Provide certificate certifying that elevations and locations of improvements are in conformance or non-conformance with requirements of the Contract Documents.
 - a. Certificate must be sealed by a registered professional land surveyor in the State of Texas.

B. Field Quality Control Submittals

1. Documentation verifying accuracy of field engineering work.

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

A. Construction Staking

1. Construction staking will be performed by the City.
2. Coordination
 - a. Contact City's Project Representative at least 2 weeks in advance for scheduling of Construction Staking.
 - b. It is the Contractor's responsibility to coordinate staking such that construction activities are not delayed or negatively impacted.
3. General
 - a. Contractor is responsible for preserving and maintaining stakes furnished by City.
 - b. If in the opinion of the City, a sufficient number of stakes or markings have been lost, destroyed or disturbed, by Contractor's neglect, such that the contracted Work cannot take place, then the Contractor will be required to pay the City for new staking with a 25 percent markup. The cost for staking will be deducted from the payment due to the Contractor for the Project.

B. Construction Survey

1. Construction Survey will be performed by the City.
2. Coordination
 - a. Contractor to verify that control data established in the design survey remains intact.
 - b. Coordinate with the City prior to field investigation to determine which horizontal and vertical control data will be required for construction survey.
 - c. It is the Contractor's responsibility to coordinate Construction Survey such that construction activities are not delayed or negatively impacted.
 - d. Notify City if any control data needs to be restored or replaced due to damage caused during construction operations.
 - 1) City shall perform replacements and/or restorations.
3. General
 - a. Construction survey will be performed in order to maintain complete and accurate logs of control and survey work as it progresses for Project Records.
 - b. The Contractor will need to ensure coordination is maintained with the City to perform construction survey to obtain construction features, including but not limited to the following:
 - 1) All Utility Lines
 - a) Rim and flowline elevations and coordinates for each manhole or junction structure
 - 2) Water Lines
 - a) Top of pipe elevations and coordinates for waterlines at the following locations:
 - (1) Every 250 linear feet

- (2) Horizontal and vertical points of inflection, curvature, etc. (All Fittings)
- (3) Cathodic protection test stations
- (4) Sampling stations
- (5) Meter boxes/vaults (All sizes)
- (6) Fire lines
- (7) Fire hydrants
- (8) Gate valves
- (9) Plugs, stubouts, dead-end lines
- (10) Air Release valves (Manhole rim and vent pipe)
- (11) Blow off valves (Manhole rim and valve lid)
- (12) Pressure plane valves
- (13) Cleaning wyes
- (14) Casing pipe (each end)
- b) Storm Sewer
 - (1) Top of pipe elevations and coordinates at the following locations:
 - (a) Every 250 linear feet
 - (b) Horizontal and vertical points of inflection, curvature, etc.
- c) Sanitary Sewer
 - (1) Top of pipe elevations and coordinates for sanitary sewer lines at the following locations:
 - (a) Every 250 linear feet
 - (b) Horizontal and vertical points of inflection, curvature, etc.
 - (c) Cleanouts
- c. Construction survey will be performed in order to maintain complete and accurate logs of control and survey work associated with meeting or exceeding the line and grade required by these Specifications.
- d. The Contractor will need to ensure coordination is maintained with the City to perform construction survey and to verify control data, including but not limited to the following:
 - 1) Established benchmarks and control points provided for the Contractor's use are accurate
 - 2) Benchmarks were used to furnish and maintain all reference lines and grades for tunneling
 - 3) Lines and grades were used to establish the location of the pipe
 - 4) Submit to the City copies of field notes used to establish all lines and grades and allow the City to check guidance system setup prior to beginning each tunneling drive.
 - 5) Provide access for the City to verify the guidance system and the line and grade of the carrier pipe on a daily basis.
 - 6) The Contractor remains fully responsible for the accuracy of the work and the correction of it, as required.
 - 7) Monitor line and grade continuously during construction.
 - 8) Record deviation with respect to design line and grade once at each pipe joint and submit daily records to City.
 - 9) If the installation does not meet the specified tolerances, immediately notify the City and correct the installation in accordance with the Contract Documents.

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 APPLICATION

3.5 REPAIR / RESTORATION [NOT USED]

3.6 RE-INSTALLATION [NOT USED]

3.7 FIELD [or] SITE QUALITY CONTROL

A. It is the Contractor's responsibility to maintain all stakes and control data placed by the City in accordance with this Specification.

B. Do not change or relocate stakes or control data without approval from the City.

3.8 SYSTEM STARTUP [NOT USED]

3.9 ADJUSTING [NOT USED]

3.10 CLEANING [NOT USED]

3.11 CLOSEOUT ACTIVITIES [NOT USED]

3.12 PROTECTION [NOT USED]

3.13 MAINTENANCE [NOT USED]

3.14 ATTACHMENTS [NOT USED]

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE
4/7/2014	M.Domenech	Revised for DAP application